1/2   009   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--MIXED COMPLEXES OF RARE EARTH ELEMENTS WITH
5,7,DIBROMO,8,HYDROXYQUINOLINE, 1,10,PHENANTHROLINE, OR
AUTHOR-(03)-POLUEKTOV, N.S., MISHCHENKO, V.T., LAUYER, R.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(4), S88-92

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RARE EARTH COMPOUND, COMPLEX COMPOUND, HYDROXYL RADICAL,
QUINOLINE, PHENANTHROLINE, NEODYMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1201   STEP NO--UR/0078/70/015/004/0988/0992

CIRC ACCESSION NO--AP0128619
                   UNCLASSIFIED

2/2   009
CIRC ACCESSICN NO--AP0128619   UNCLASSIFIED   PROCESSING DATE--20NOV70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RARE EARTH METAL IONS (M) FORM
8,COORDINATE COMPLEXES WITH 5,7,DIBROMO,8,HYDROXYQUINOLINE (HA),
1,10,PHENANTHROLINE (PHEN) AND DIPHENYLGUANADINE (L) OF THE COMPN. (MA
SUB3 (PHEN)) AND (MA SUB4) HL.   H(MA SUB4) AND NH SUB4 (MA SUB4) FORMED
AT PH GREATER THAN OR EQUAL TO 8.5 IN THE ABSENCE OF 1,10,PHENANTHROLINE
AND DIPHENYLGUANIDINE OR IN THE CASE OF M EQUALS ND IN THE PRESENCE OF
1,10,PHENANTHROLINE.   FACILITY: LAB., INST. OBSHCH. NEORG.
KHIM., ODESSA, USSR.

UNCLASSIFIED

USSR

UDC 577.150.13:541.67

MISHCHENKO, V. V., SHAPIRO, T. A., RUBCHINSKAYA, Yu. M., KHRISTIANOVICH, KHOMUTOVA, Ye. D. and BEREZOVSKIY, V. M., All-Union Scientific Research Institute of Vitamins

"Nucleotides, Coenzymes, and Phosphoric Acid Esters. XXVIII. Spectroscopic Investigation of Intramolecular Interaction in FAD and Its Analogs"

Abstract: By studying circular dichroism, fluorescence, and paramagnetic resonance, it was established that in aqueous solutions flavin-adenine dinucleotide (FAD) and its analogs differing with respect to the number of phosphoric acid groups, which ranged from one to four in the compounds investigated, exhibited interaction between the flavin and adenine parts of the molecule. With an increasing length of the phosphoric acid chain connecting the two parts of the molecule, the magnitude of the intramolecular interaction decreased.

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USSR   UDC 669.183.18.046.58

POVOLOTSKIY, D. YA., MISHCHENKO, V. YA., VYATKIN, G. P., and
PUZYREV, A. V., Chelyabinsk Polytechnical Institute

"Physiocochemical Properties of Melts of the $CaO-Al_2O_3-CaF_2$ System"

Abstract: An experimental study was made of the electrical con-
ductivity, ductility, and surface tension of synthetic slags
of the $CaO-Al_2O_3-CaF_2$ system (2 -- 61% CaO; 29 -- 56% Al_2O_3;
0 -- 60% CaF_2) at temperatures at 1400-1800° C. The effect of
temperature and chemical composition on the properties of slags
is presented graphically on sections of ternary diagrams. In
the studied area of composition slags adjacent to the angle
CaF_2 possess maximum electrical conductivity and slags adjacent
to the angle CaF_2 possess minimum ductility. Calcium fluoride
possesses the highest surface activity. Introduction of 0 to
60% of calcium fluoride into the melt reduces the surface ten-
sion at t = 1700° C from 550 to 254 erg/cm².
1/1

USSR

Mischenko, Yu. A.

"Over-The-Horizon Radar" (Zagorizontnaya Radiolokatsiya)

Moscow, "Voyenizdat," 1970 (2nd quarter), 5 pages with illus., 25,000 copies.

Abstract: The physical nature of the principles forming the basis of over-the-horizon radar are examined in the book. Primary attention is given to the characteristics of the earth's ionosphere which determine the important parameters of an over-the-horizon radar station: target-detection zone, accuracy of range measuring and of angular coordinates, etc. A short description of some of the assemblies and equipment of over-the-horizon radar stations developed abroad is given.

The book is intended for officers of various types of troops who are involved with radio-technical equipment operation. It may be useful for a wide circle of readers who desire to acquaint themselves with the fundamentals of over-the-horizon radar.

1/1

USSR

UDC 669.715.018.95

ZABOLEYEV-ZOTOV, V. V., MISHCHENKO, YU. N.

"Antifriction Properties and Wear Resistance of Certain Composite Materials with Molybdenum Disulfide"

V sb. Metallovedeniye i prochnost' materialov. T. 3 (Physical Metallurgy and Material Strength. Vol 3 -- collection of works), Volgograd, 1971, pp 352-357 (from RZh-Metallurgy, No 4, Apr 72, Abstract No 41642)

Translation: A comparative study was made of cast and pressed specimens of composites based on aluminum with molybdenum disulfide. The conditions of manufacturing the cast and pressed specimens of the composites made it possible for the molybdenum disulfide to be retained in them even when heating at 700°. On the basis of the studies it is possible to draw the conclusions that during friction in oil the best results are obtained for cast specimens. In the presence of dry friction, the better antifriction properties occur for the pressed specimens with 35% molybdenum disulfide and the cast specimens with 20% disulfide; however, the hardness of the cast specimens is higher. 3 illustrations and a 2-entry bibliography.

1/1

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USSR

MALKIYEL', B. S., MIZYUK, M. G., KIRLAN, V. N., MISHCHUK, N. A.

"Miniature Kinescope for Color Television"

Moscow, Tekhnika kino i televideniye, No. 7, 1971, pp 68-69

Abstract: The color kinescope described in this article is meant for individual viewing or as control-room monitor.   It uses a system of color division with subsequent focusing, and magnetic switching of the beam produced by a single electron gun in the tube base. A longitudinal cross section of the tube, indicating its general construction, is sketched. The image measures 60 mm along the diagonal, the angle of the electron beam deflection is 40°, and the diameter of the tube neck is 13 mm. An explanation of the tube's operation is given. Two curves are given from which the permissible ripple in the supply voltage for the tube for obtaining pure colors can be estimated. A photograph of the tube together with its basic specifications is reproduced on the inside rear cover of the journal.

1/1

1/2   014   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--THE FIRST RESULTS OF DEEP SEISMIC SOUNDING IN THE BAIKAL RIFT ZONE
-U-
AUTHOR--KRYLOV, S.V., MISHENKIN, B.P., KRUPSKAYA, G.V., PETRIK, G.V.,
YANUSHEVICH, T.A.
COUNTRY OF INFO--USSR

SOURCE--GEOLOGIYA I GEOFIZIKA 1970, NR 1 (121) PP 84-91

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--SEISMIC SOUNDING, EARTH CRUST, SEISMIC WAVE, MOHOROVICIC
DISCONTINUITY, ELASTIC WAVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/1290   STEP NO--UR/0210/70/000/001/0084/0091

CIRC ACCESSION NO--AP0103172
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0103172

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FIRST RESULTS OF STUDY OF THE
EARTH'S CRUST OF BAIKAL RIFT ZONE AND SOUTHERN END OF THE SIBERIAN
PLATFORM, CARRIED OUT BY THE PUNCTATE SOUNDING METHOD USING THE WAVES OF
DIFFERENT TYPES ARE LISTED IN THE PAPER. THE CHANGES OF SEISMIC
DISCONTINUITIES RELIEF, INCLUDING THE MOHO AND ALSO ELASTIC WAVES
VELOCITIES ALONG THE ROUTE OF STUDY ARE REPRESENTED IN THE SUMMARY
SECTION OF THE EARTH'S CRUST. IT IS ESTABLISHED THAT THE MOHO
DISCONTINUITY IN BAIKAL RIFT ZONE IS CHARACTERIZED BY DECREASED VALUES
OF ELASTIC WAVES VELOCITIES. "THE ROOT" AND "ANTIROOT" ARE ABSENT IN THE
RELIEF OF THE EARTH'S CRUST BASEMENT.

UNCLASSIFIED

USSR

UDC 621. 315. 592:621.383.51

DROZDOV, V.A., KURMASHOV, SH.D., MISHENKO, N.T.

"Photocurrent Cf Heterojunction With Long-Time Relaxation Of Space Charge"

USSR

UDC 615.322

DERBENTSEVA, N. O., MISHENKOVA, Ye. L., and GARAGULYA, O. D., Institute of Microbiology and Virology, Academy of Sciences Ukrainian SSR

"Comparison of the Antibacterial and Antivirus Properties of the Tannins of Imanine"

Abstract: The antibiotic imanine, which is extracted from Hypericum per-
foratum L., exhibits activity against both viruses and Gram-positive bacteria.
The imanine tannins were separated by a method described in earlier work by
the authors (Mikrobiol. Zh., 6, 33, 1971). It was shown that the activity of
the isolated fractions against Staph. aureus 209 did not correspond to their
activity against the tobacco mosaic virus. The presence of catechins and
polyoxyflavonoids in the fractions with antivirus activity was confirmed.

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USSR/Mil/RU

VASIL'YEV, N., Col, author of article about training at the Leningrad Higher
Combined Arms Command School imeni Kirov. He identified:

MISHEROV, Vladimir Timofeyevich, Lt Col, tactics instructor.

Krasnaya Zvezda, 10 Dec 71, p 2, col 5

(2)

USSR

MISHEYKIS, F. F.

"Certain Classes of Limiting Distributions"

Lit. Mat. Sb. [Lithuanian Mathematics Collection], 1972, Vol 12, No 3, pp 133-152 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V16, by the author).

Translation: Suppose we are given a sequence of independent random quantities (i. r. q.)

$$\xi_1, \ \xi_2, \ \ldots \tag{1}$$

Let us assume that we can fix numbers $B_n > 0$ and A_n such that there will be a limit in the sense of weak convergence

$$G_n(x) \underset{n \to \infty}{\Longrightarrow} G(x), \tag{2}$$

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USSR

where G(x) is the distribution function (df), while

$$G_n(x) = P\left\{\frac{1}{B_a}\sum_{j=1}^{n}\xi_j - A_n < x\right\}.$$

Let us represent by C the set of all possible limits

$$\lim_{k\to\infty}\frac{B_{n_k-1}}{B_{n_k}} = c;$$

which can be produced with various subsequences $\{n_k\}$.

Definition 2. We will state that df $G(x) \in L_C$ if there are a sequence of i. r. q. (1) and constants $B_n > 0$, $B_n \to \infty$ and A_n, such taht the set of all possible limits

$$\lim_{k\to\infty}\frac{B_{n_k-1}}{B_{n_k}} = c$$

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USSR

Misheykis, F. F., Lit. Mat. Sb., 1972, Vol 13, No 3, pp 133-152.

is C, and at limit (2) we find df $G(x)$.

If set C consists of one element c, we can use the symbols L_c and $L_{\{c\}}$.

In our opinion, the most interesting results of the article are the following:

Theorem 9. If $\{c_1, c_2, \ldots,$ where $0 < c_j < 1,$ $c_n \to 1\} \subset C,$ then $L_c = L_{\{1\}}$.

Theorem 10. If $\log c / \log c'(c \neq c'; 0 < c, c' < 1)$ is a rational number, then $L_c \neq L_{c'}$.

Theorem 11. If $c' = c^\alpha,$ where $\alpha > 1$ is a rational number, but $\alpha \neq 2, 3, \ldots,$ the inclusion $L_{c^\alpha} \supset L_c$ does not occur.

Theorem 14. If df $G(x) \in L_C$ $(C \neq \{0\}),$ then

$$\overline{\lim_{t \to \pm\infty}} |g(t)| < 1,$$

where $g(t)$ is the characteristic function corresponding to df $G(x)$.

3/3

USSR

MISHEYKIS, P. E.

"Certain Expansions of a Class of Stable Laws"

Lit. mat. sb. [Lithuanian Mathematics Collection], 1972, Vol 12, No 3,
pp 89-99 (Translated from Referativnyy Zhurnal, Kibernetika, No 3, Moscow,
1973, Abstract No 3 V12 by Ya. Nikitin).

Translation: Let us call distribution function (df) G c-stable if we can
find df F, belonging to the same type as G and satisfying the equation

$$G(x) = F(x) \cdot G\left(\frac{x}{c}\right), \quad 0 < c < 1.$$

This work presents a detailed study of the properties of the class of
laws introduced. For example, it is pointed out that all c-stable laws are
limitlessly divisible but, with the exception of the normal law, do not
have finite dispersion. The arbitrary df G is stable if it is c-stable
for all $c \in (0,1)$. In each point, the c-stable df is differentiable an
infinite number of times. A certain canonical representation is also pro-
duced for the logarithm of the characteristic function of a c-stable law.
The concept of c-stability can, in turn, be somewhat generalized. We will
state that the df $G \in X$, if its characteristic function g(t) with certain
$c_1, c_2, \ldots, c_n > 0; r_1, \ldots, r_n > 1, 1 \le n < \infty$, satisfies the equation

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USSR

MISHEYKIS, P. P., Lit. mat. sb., 1972, Vol 12, No 3, pp 89-99.

$$g(t) = \left(\prod_{j=1}^{n} g^{r_j}(c_j t) \right) e^{iat},$$

where a is a constant. The properties of rules of class $\mathfrak{X}$ are quite similar to the properties of c-stable laws. Several characterizations of the normal law in the class of all distributions are produced in passing, as well as normal and Poisson laws in the class of limitlessly divisible laws.

2/2

- 1 -

UNCLASSIFIED

TITLE--ABSORPTION OF ULTRASOUND IN MULTIVALLEY SEMICONDUCTORS -U-

PROCESSING DATE--30OCT70

AUTHOR-(02)-ZILBERMAN, P.YE., MISHIN, A.G.

CCUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(3), 456-60

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ULTRASOUND ABSORPTION, GERMANIUM SEMICONDUCTOR, WAVE PROPAGATION, ELECTRON, ENERGY SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1716

STEP NO--UR/0449/70/004/003/0456/0460

CIRC ACCESSION NO--AP0120428

UNCLASSIFIED

CIRC ACCESSION NO--AP0120428   UNCLASSIFIED   PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0-- ABSTRACT. A SYSTEM OF PHENOMENOL. EQUATIONS
  IS SOLVED AND FORMULAS ARE DERIVED FOR THE ELECTRON ABSORPTION OF
  ULTRASOUND IN N GE TYPE SEMICONDUCTORS IN A WIDE FREQUENCY RANGE.   AT
  HIGH FREQUENCIES, PARTIAL NEUTRALIZATION OF ELECTRON CLUSTERS TAKES
  PLACE IN SOME DIRECTIONS (AND AT CERTAIN POLARIZATIONS) OF ULTRASOUND
  WAVE PROPAGATION.   THE INFLUENCE IS DISCUSSED OF THE ANISOTROPY OF
  ELECTRON ENERGY SPECTRA ON THE ULTRASOUND ABSORPTION.   FACILITY:
  INST. RADIOTEKH. ELEKTRON., MOSCOW, USSR.

UNCLASSIFIED

ZIL'BERMAN, P. YE. and MISHIN, A. G., Institute of Radio Engineering and
Electronics of the USSR Academy of Sciences, Moscow

"The Effect of a Strong Electric Field on the Interaction of Electrons with
High Frequency Ultrasound"

Abstract: The authors present the results of studying the intensification of
ultrasound with the following conditions satisfied: $k \ell \gg 1$, where K is the
wave number of the sound and ℓ is the length of the free path electrons; v_{dr}.
$k \tau \gtrsim 1$, where the rate of drift $v_{dr}. \sim eE\tau/m$ and where τ is pulse relaxation
time and e and m are the charge and mass of the electron. An appropriate system
of equations was obtained by using a procedure described by P. Ye. Zil'berman
(ZhETF, 60, 1943, 1971). As opposed to the latter procedure, the authors of
this paper consider the higher harmonics of the sound wave. Equations were
solved by the method of iteration with respect to the amplitude of the first
harmonic. The sound amplification coefficient is calculated, taking into con-
sideration the main, nonlinear contribution. The authors thank V. L. Bonch-
Bruyevich, Yu. M. Gal'perin, Yu. V. Gulyayev, and V. D. Kagan for their dis-
cussion of the work. Original article: 11 formulas, one figure, and four
bibliographic entries.
1/1

USSR

GINOVKER, A.S., GUZEV, A.A., KON'KOV, V.P., KURYSHEV, G.L., MISHIN, A.I.,
SINITSA, S.P., TERMAN, B.G.

"Integrated Circuit With Programmed Structure Using MIS Memory Transistors"

Abstract: The integrated circuit is described of an all-purpose element ful-
filled with conventional MIS [metal-insulator-semiconductor] transistors and
MIS transistors with a memory (memory transistors). The integrated circuit
realizes the following logical function:

$$z\,(t + \delta) = \overline{v}a_i x_i \quad (i = 1,2,3,4),$$

where x_i is the input logical variables; a_i is the state characterizing the
i-th memory transistor; z is the output variable; and δ is the delay. The
circuit can be used for construction of a specialized array for fulfillment of
logical, switching, and memory functions and also for construction of all-purpose
structurally-uniform logical nets, which makes it possible for each problem to
organize a specialized computing device by a programmed adjustment of its
elements. 1 fig. 5 ref. Received by editors, 16 June 1971.
1/1

USSR

MISHIN, A. I.

UDC: 8.74

"Basic Properties of Homogeneous Devices With Variable Adjustment Structure"

V sb. Vychisl. sistemy (Computer Systems--collection of works), vyp. 41, Novosibirsk, 1971, pp 113-124 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V492)

Translation: The paper deals with the properties of homogeneous devices with variable adjustment structure. A homogeneous device with variable adjustment structure is a lattice in which each element can exchange information only with adjacent elements. The elements of the lattice are identical finite automata; the table of states and the rules which determine transitions from one state to another are common for all elements. The elements of the lattice permit varying the configuration of paths for data transmission, and enable localizing any malfunction of an adjacent element. This is achieved by having the elements of the lattice receive information by the principle of short-range action where the operability of the system of adjustment is not interrupted when any section of the lattice fails since there is a set of paths which bypass malfunctioning elements or groups of elements and information is transmitted in the lattice sequentially from

1/2

USSR

MISHIN, A. I., Vychisl. sistemy, vyp. 41, Novosibirsk, 1971, pp 113-124

neighbor to neighbor along the chain (chains) formed by elements of the
lattice in the process of adjustment, rather than by the principle of
coordinate selection where failure of even one coordinate line divides the
structure into two unrelated regions. Various methods of coding and ad-
justment are described and compared. Note is made of the possibility of
adjusting the device with variable structure by means of an automaton
realized in the device itself, and also the possibility of self-reproduction
of automata. Use of the devices is illustrated by solution of labyrinth
problems.

2/2

- 41 -

USSR   UDC   621.318.57

KONYAYEV, S. I., KLYAUS, Kh. I., MISHIN, A. I., Institute of Mathematics,
Siberian Department of the Academy of Sciences of the USSR

"A Thin-Film Switching Element"

Translation: This Author's Certificate introduces a thin-film switching
element with Ag-Se-Al structure. As a distinguishing feature of the patent,
the number of stable states is increased by making the dielectric film with
a stepwise variable thickness.

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USSR

UDC 8.74

KEKELIYA, V. V., MISHIN, A. I.

"Arithmetic and Logical Operations on All-Purpose Arrays with Programmable Structure"

V sb. Teor. kibernetika (Cybernetics Theory--collection of works), Kiev, 1971, pp 66-79 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V412)

Translation: A study is made of the all-purpose structurally homogeneous device which is designed to execute arithmetic and logical operations and storage functions. The execution of the indicated operations is realized on registers arranged in the structurally homogeneous device. Here, the functioning of the registers is described in terms of periodically defined transformations. It is proposed that single-type operations are executed on an undefined set of operands. Here, the word length of the operand can be changed by programming methods. The proposed homogeneous device with a programmable structure is an array each element of which can exchange information directly only with its adjacent elements. By the elements of the array we mean identical finite automata for which the table of states and the rules defining transitions from one state to another are general. For execution of the arithmetic and logical operations in the structural-homogeneous device, a so-called program circuit is connected which

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USSR

KEKELIYA, V. V., et al., _Teor. kibernetika_, Kiev, 1971, pp 66-79

executes the following functions: a) input of the initial information to the array, b) copying information in the array itself, c) control of execution of logical and computation operations, d) output of the computation results from the array. As an example, a study is made of the execution of the microprogram for the operation of addition in the described structurally homogeneous device. The bibliography has 16 entries.

2/2

1/2   013   UNCLASSIFIED   PROCESSING DATE--09OCT70
TITLE--EFFECT OF DISLOCATION STRUCTURE ON THE MAGNETIC PROPERTIES OF
TRANSFORMER STEEL -U-
AUTHOR--MISHIN, D.D.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 233-40

DATE PUBLISHED------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TRANSFORMER STEEL, MAGNETIC PROPERTY, CRYSTAL DISLOCATION,
ALLOY DESIGNATION, MAGNETIZATION/(U)E330 TRANSFORMER STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0186   STEP NO--UR/0048/70/034/002/0233/0240

CIRC ACCESSION NO--AP0115890
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0115890
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATION WAS ESTABLISHED
BETWEEN THE DISLOCATION STRUCTURE AND THE MAGNETIC PROPERTIES OF
ELECTROTECH. STEEL. THE STUDIED PROPERTIES WERE MAGNETIC PERMEABILITY,
MAGNETIZATION CURVES, COERCIVE FORCE, AND ENERGY LOSSES. THE EFFECT OF
TEMP. ON THESE PROPERTIES WAS ALSO EXAMD. BOTH SINGLE CRYSTALS AND
POLYCRYST. SAMPLES OF STEEL E330 WERE STUDIED.   FACILITY: URAL.
GOS. UNIV. IM. GOR'KOGO, SVERDLOVSK, USSR.

UNCLASSIFIED

USSR

UDC 533.932

GADION, V. N., IVANOV, V. G., MISHIN, G. I., PALKIN, S. N., Physico-Technical Institute imeni A. F. Ioffe of the USSR Academy of Sciences, Leningrad

"Study of the Conductivity of Hypersonic Wakes on a Ballistic Device"

Abstract: Results are presented from measuring the conductivity of a hypersonic wake for model flight speeds of 3.3-6.4 km/sec and an air pressure of 40, 80 and 160 mm Hg. These data are used to calculate the electron concentration drop downstream which offers the possibility of estimating the electron concentration decrease rate. Analysis of the results shows that the decrease in electron concentration in the "hot" part of the far wake $(T > 1000°$ K) is determined by the process of dissociative recombination $NO^+ + e \rightarrow N + O$, and the recombination coefficient is approximately described by the function $\alpha \approx 3 \cdot 10^{-3} T^{-3/2}$ cm^3/particle-second.

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MISHIN, G.I.

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where u_n and v_n are a projection of the velocity vectors of the corresponding components on the x and y axes; N is the number of components, while ρ_{n0} are unperturbed values of their densities, permitting the flow of each component to be considered irrotational and accordingly the introduction of a perturbation potential for each component. The remainder of the investigation is done using operational calculus methods.

Gadlon, V. N., V. G. Ivanov, G. I. Mishin, S. N. Palkin, and L. I. Shturin. Electronic and gas dynamic parameters of hypersonic wakes behind models moving in argon. ZhTF, no. 5, 1972, 1049-1055.

The conductivity, velocity, and width of hypersonic wakes behind models moving in argon were studied within a velocity range of 3300-4900 m/sec, at pressures of 30, 40, 60, 80, and 100 torr and a temperature of about 290° K. The experiments were conducted on polyethylene 8 mm cylindrical models of small elongation with spherical noses and conic skirts. Copperplated aluminum spheres 5.4 mm in diameter were used for control experiments. The models were shot into a pressure chamber provided with instrumentation for measurement of the wake conductivity and velocity. Wake velocity was measured electrodynamically and by the Toepler method.

Measurement results are presented for tests of wake conductivity at a constant pressure and variable velocity or at a constant velocity and variable pressure. The latter test results show that as the distance from the body increases, a relationship develops between the

USSR

UDC: 533+621.5:533

GADION, V. N., IVANOV, V. G., MISHIN, G. I., PALKIN, S. N., SKURIN, L. I., ,
Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the
USSR, Leningrad

"Investigation of the Electronic and Gas-Dynamic Parameters of a Hypersonic
Wake Behind Models Moving in Argon"

Abstract: The paper presents experimental results on measurement of the con-
ductivity, velocity and diameter of the wake behind models moving in argon at
3300-4900 m/s. The pressure in the test chamber was varied from 30 to 100
mm Hg. The models were cylinders with low aspect ratio with a spherical
nose and a tapered skirt 8 mm in diameter. The test models were made from
polyethylene, and control measurements were made on aluminum copper-plated
spheres 5.4 mm in diameter. Taking the initial conditions of the experiment
as a basis, a theoretical analysis is made of the temperature, velocity and
diameter of the wake, and the electron concentration along the wake using
various models of viscosity. The viscosity models are evaluated by com-
paring theoretical and experimental data on wakes with a length up to 500
times the diameter of the model.
1/1

USSR

UDC 621.396.6-181.48

MISHIN, G. T.

"Study of the Process of Manufacturing Thin-Film Resistors by the Experiment Planning Methods"

V sb. Metody mat. i fiz. modelir. i optimiz. parametrov radioelektron. appara-
tury. No 2 (Methods of Mathematical and Physical Simulation and Optimization
of the Parameters of Radio Electronic Equipment. No 2 -- collection of works),
Moscow, 1972, pp 84-86 (from RZh-Radiotekhnika, No 7, Jul 72, Abstract No
7V254)

Translation: The schematic of the qualitative indexes of resistors is construc-
ted as a function of the parameters of the technological process on the basis
of analyzing the factors affecting the process of thermal evaporation and con-
densation of the multicomponent alloy when manufacturing the resistors. In
order to investigate the dependence of the thermal coefficient of resistance
on these parameters, a plan was selected containing 27 experiments by the
data from which the regression coefficients were calculated. However, the
polynomial model of the process constructed by them turns out to be unsatisfac-
tory as a result of inaccuracy of maintaining the evaporated conditions. There
is 1 illustration and 1 table.
1/1

1/2   009   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--DETERMINATION OF THE HEAT OF HYDRATION OF CEMENT -U-

AUTHOR-(04)-ZASEDATELEV, I.B., MAMEDOV, F.YU., MISHIN, G.V., KUZNECHENKO,
YU.L.
COUNTRY OF INFO--USSR

SOURCE--USSR 263,221
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CEMENT, PATENT, HEAT OF HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1475   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128874
                         UNCLASSIFIED

CIRC ACCESSION NO--AA0128874
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT OF HYDRATION OF CEMENT
WAS DETD. BY CALORIMETRIC MEASUREMENTS IN AN AUTOCLAVE, USING A
DIFFERENTIAL CALORIMETER CONTG. REF. SUBSTANCES AND THE SUBSTANCES TO BE
ANALYZED. TO INCREASE THE TEMP. RANGE OF THE ANAL., THE AUTOCLAVE IS
FILLED WITH GAS, SUCH AS N, AT A PRESET PRESSURE AND THE TEMP. OF THE
MEDIUM IN THE AUTOCLAVE IS MAINTAINED AT A LEVEL BELOW THE B. P. OF
WATER AT THE PRESET PRESSURE. THE DIFFERENCE IN THE CONSUMPTION OF
ELEC. ENERGY EXPENDED WHILE HEATING THE SUBSTANCE BEING ANALYZED
ACCORDING TO A SET PROGRAM AND WHILE MAINTAINING THE TEMP. OF THE REF.
CALORIMETRIC SUBSTANCE AT THE TEMP. OF THE SUBSTANCE UNDER ANAL. IS
DETD. THE UNKNOWN QUANTITY IS DETD. FROM THE DIFFERENCE IN THESE
CONSUMPTIONS.   FACILITY: TEPLOPROEKT ALL UNION SCIENTIFIC
RESEARCH AND DESIGN INSTITUTE.

UNCLASSIFIED

USSR

UDC 541.183:661.183.6

MISHIN, I. V., KLYACHKO-GURVICH, A. L., BRUYEVA, T. R., and RUBINSHTEIN, A. M.,
Institute of Organic Chemistry Imeni N. D. Zelinskii, Acad. Sc. USSR

"The Technique for Improving the Adsorption Capacity of the Sodium Form of Mordenite."

Abstract: Treatment of the starting plant preparation of the mordenite (I) with
2N HCl produces the H-form (II), which can be recationized to the original
composition (III). It was shown that (III) has adsorption capacity approaching
that of (II) -- identical with the "wide-porous" NaM described in literature.
Initial heats of adsorption of benzene for (I) and (III) are similar, those of
(II) being lower.

1/1

USSR

GUMETSKIY, R. Ya., GURA, B. M., DERKACH, M. F., MISHIN, L. N.

"Algorithm for Recognition of Simple Phrases"

Translation: An attempt is studied to expand the model of recognition of words so as to allow recognition of intelligent phrases with a simple grammatic structure, composed of a limited set of words. Uncertain decisions on words are refined by semantic analysis, and when necessary by the use of differentiated procedures in the lower levels of the model. The result of recognition of a phrase is a sequence of words combined into a semantic unit and compatible with the acoustical characteristics of the speech stream.

1/1

USSR

UDC   8.74

GUMETSKIY, R. Ya., GURA, B. M., DERKACH, M. F., MISHIN, L. N.

"An Algorithm for Recognizing Simple Sentences"

Tallin, VI Vses. seminar "Avtomat. raspoznavaniye slukhovykh obrazov (ARSO
VI)". Dokl. i soobshch.--sbornik (Sixth All-Union Seminar on Automatic Recog-
nition of Audible Patterns. (ARSO VI). Papers and Reports--collection of
works), 1972, pp 85-88 (from RZh-Matematika, No 1, Jan 73, abstract No 1V850
by the authors)

Translation: The paper discusses an attempt to extend a model of word recog-
nition in such a way as to enable recognition of meaningful sentences with
simple grammatical construction compiled from a limited set of words. In-
definite decisions on words are made more precise by meaning analysis, and,
when necessary, by reference to differentiating procedures of lower levels of
the model. The result of sentence recognition is a sequence of words united
by unity of meaning and compatible with the acoustic characteristics of the
speech flow.

1/1

USSR

UDC 621.791.76.011:621.7.044.2:621.791.03:
539.4

TRUTNEV, V. V., Candidate of Technical Sciences, YAKUSHIN, A. F., DUNAYEV, A.A., and MISHIN, N. I., Engineers, and GODIN, V. M., Candidate of Technical Sciences

"Comparative Evaluation of Joint Quality From Explosive Welding of Aluminum With Titanium, Steel and Nickel"

Moscow, Svarochnoye Proizvodstvo, No 7, Jul 73, pp 19-21

Abstract: Results of a comparative evaluation of the weldability of Al with Ti, steel, and Ni by explosion welding under identical conditions is presented. Plates of AMg6 alloy measuring 6x 65 x 130 mm were clad with hot rolled AD1 aluminum and plates of VT6 titanium alloy, Kh18N10T steel, and electrolytic nickel measuring 5 x 60 x 120 mm. From shear tests it was found that Al + Ti had the best weldability. Shear strength also increased when the distance between the metal being welded was increased from 3 to 5 to 8 mm with the highest test values noted for the distance of 5 mm. The shear strength of Al + Ni joints was better than that of Al + Kh18N10T steel. It was noted that the coefficient of impact energy utilization is one of the important parameters in the explosive welding process that affects the weldability of dissimilar materials. 3 figures, 2 tables, 6 bibliographic references.

1/1

Infrared Rays

USSR

DUSHKOV, I. I., KARLOV, N. V., KRYNETSKIY, B. B., MISHIN, V. A., PETROV, R. P.

"Application of the Duality Theorem to Investigate the Antenna Characteristics of Superheterodyne Photoreceivers [Infrared Heterodyne Detection]"

Abstract: Results are presented from measuring the radiation directivity pattern of a heterodyne receiver of CO_2-laser emission. Application of the heterodyne receiver constricts the directivity pattern to 0.007-0.01 rads.

Figures are presented showing the results of measuring the directivity patterns of the heterodyne receiver in the 10.6 micron range. For comparison of the directivity pattern of direct and heterodyne reception, the directivity was measured for Ge-Au and Ge-Zn-Sb receivers operating as videodetectors. The application of the heterodyne method of reception narrows the directivity pattern by 15 times and provides significant (20 decibels) gain in the signal.

The application of the duality theorem when measuring the directivity pattern of a heterodyne receiver in the infrared range permits quite exact and simple estimation of the antenna characteristics of the optical heterodyne

1/2

USSR

receiver. Use of the method of direct measurement of the directivity pattern
permits more exact measurement of the antenna characteristics of the heterodyne
receiver of infrared radiation and estimation of the quality of different opti-
cal elements.

2/2

USSR

UDC: 621.385:530.145.6:623

DUSHKOV, I. I., KARLOV, N. V., KRYNETSKIY, B. B., MISHIN, V. A., PETROV, R. P.

"Antenna Characteristics of a Heterodyne Receiver of CO_2 Laser Emission"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1971, No 1, pp 40-44 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5D487)

Translation: The directivity of a heterodyne receiver of CO_2 laser emission was studied directly and by means of the generalized reciprocity theorem. The gain in the output signal with the use of heterodyne reception is 20 DB. The radiation pattern is narrowed by a factor of 15 to 0.007 radian.   A. K.

1/1

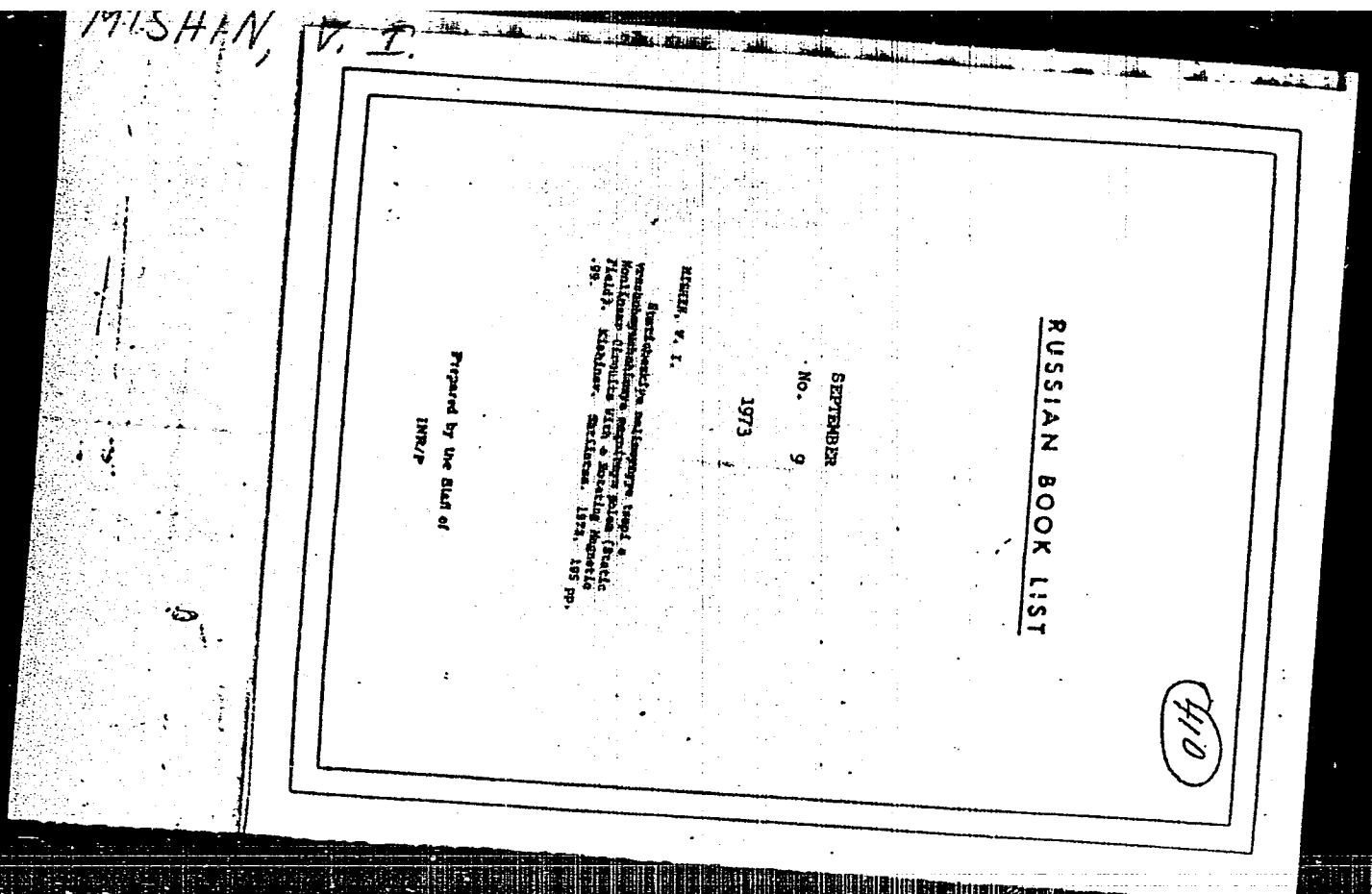Instruments and Measurements

USSR

UDC: 621.3.038.8:621.317.1

DUSHKOV, I. I., KARLOV, N. V., KRYNETSKIY, B. B., MISHIN, V. A., and PETROV, R. P.

"Heterodyne Method for Measuring the Diffusion Component of Laser Mirrors"

Translation: The description is given of a heterodyne method for determining the diffusion component; its advantages, narrow reception diagram and high sensitivity, make it an effective measurement method. A single-mode CO_2 laser with a 5-W output power is used. The radiation receiver is a GeHg photoresistor operating at the temperature of solid nitrogen. The results are given of measurements of the diffusion component losses for gold mirrors made by various methods with a coating thickness of 1500 Å, and an estimate is made of the contribution of the diffusion component and of the dimensions of the microscopic inequalities in the mirror surfaces. A. K.

1/1

MISHIN, V. I.

RUSSIAN BOOK LIST

SEPTEMBER

No. 9

1973

Prepared by the Staff of
INR/P

MISHIN, V. I.
Statisticheskie nabliudeniya tempi &
Monitoro-iskusheleya regulyatori pola &
field…, kichulira vitch a dosaiting (Static
…, kichulmer. Seridaraa. 1973. 195 pp.
.99.

ARUTYUNYAN, L. S., TSATINYAN, A. S., AVAKYAN, O. M., KARAGEZYAN, S. G., SARAFYAN, V. G., and MNATSAKANYAN, V. A., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyana, Academy of Sciences Armenian SSR (Yerevan)

"Modification of Alkaloid Structures. VI. Some N-substituted Anabazines"

Abstract: Alkylhydroxyphenyl groups were substituted at the 2-, 3-, and 4-position of structures I, II, III, and IV.

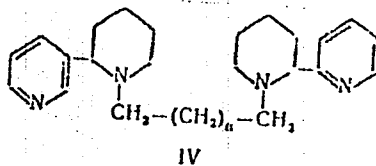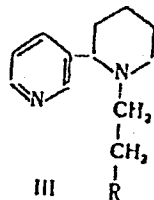1/2

- 5 -

USSR

(I)
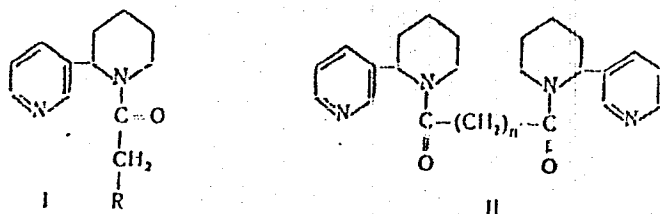
ARUTYUNYAN, L. S.,et al., Armyanskiy Khimicheskiy Zhurnal, Vol 25, No 1, 1972,
pp 78-80

The products were separated and purified by thin-layer chromatography, and
identified by their IR spectra. A table presents the values of $[\alpha]_D^{22}$, R_f,
boiling point, and percent yield for all the compounds.

2/2

USSR

UDC 621.375.826

MISHIN, V. I., Physics Institute, Academy of Sciences of the USSR, Moscow

"A Microsecond-Pulse Ruby Laser With Narrow Spectrum"

Abstract: The author presents the results of a study of a Q-switched ruby laser with negative feedback having the following parameters: emission pulse duration 700 ns, emission spectrum width $3 \cdot 10^{-2}$ cm^{-1}, pulse energy 50 mJ, nonuniformity of the pulse peak approximately 10 percent. The author thanks A. Z. Grasyuk and I. G. Zubarev for advice and discussion of the results.

1/1

Environmental & Ecological Problems

USSR

BLIZEYEV, V. I., D'YACHKOV, V. I., LERNER, I. B., MISHIN, V. K., NEMANKINA, G.S.
NIKITINA, Ye. I., DIANOVA, YE. F., and MAKLONOVA, R. Ye.

"Joint Hygienic Study of Atmospheric Pollution in Certain Industrial Centers of
the Central Volga Region"

Translation: A study was made of the contamination of the atmosphere by chem-
ical and oil-refining complexes and of the impact of pollutants on the health
and sickness rate of children and on immunohematological indexes of animals.
Measures have been elaborated for the elimination and reduction of specific
discharges into the atmosphere, for the organization of sanitary shielding of
industrial sites, and for improving the health of the child population.

1/1

TITLE--MAGNETOSPHERE MODEL BASED ON TWO ZONES OF PRECIPITATING ENERGETIC
--PARTICLES -U-
AUTHOR-(03)-MISHIN, V.M., SAIFUDINOVA, T.I., ZHULIN, I.A.

COUNTRY OF INFO--USSR

SOURCE--J. GEOPHYS. RES. 75: 797-806, 1 FEB 1970

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--MAGNETOSPHERE, MODEL, GEOMAGNETIC ACTIVITY, GEOMAGNETIC
DISTURBANCE, HIGH ENERGY PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0216   STEP NO--US/0000/70/075/000/0797/0806

CIRC ACCESSION NO--AP0126005
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0126005

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTRARY TO WIDELY HELD IDEAS ON
THE OVAL ZONE OF PRECIPITATION OF ENERGETIC PARTICLES INTO THE EARTH'S
ATMOSPHERE, THE EXISTENCE OF TWO QUASI CIRCULAR ZONES OF PRECIPITATION
WAS ESTABLISHED SEVERAL YEARS AGO ON THE BASIS OF GEOMAGNETIC ACTIVITY
DATA. THE TWO ZONES WERE FOUND TO BE OF QUITE A DIFFERENT NATURE. ONE
OF THESE ZONES, THE HIGHER LATITUDE ONE, HAS ITS MAXIMUM ON THE DAY SIDE
(LATITUDE SIMILAR TO 77DEGREES); THE OTHER ZONE, THE LOWER LATITUDE ONE,
HAS A CONSIDERABLY LONGER LATITUDINAL EXTENSION AND HAS ITS MAXIMUM ON
THE NIGHT SIDE (LATITUDE SIMILAR TO 67DEGREES). THE CONCEPT OF THE OVAL
ZONE AS A SINGLE UNIFIED ZONE IS NOT A NCESSARY CONCLUSION AND COULD BE
A RESULT OF INSUFFICIENT DATA OR OF INCORRECT DATA REDUCTION. THE SAME
CONCLUSION CAN ALSO BE REACHED ON THE BASIS OF THE ANALYSIS PERFORMED BY
FELDSTEIN HIMSELF AND ON THE BASIS OF OTHER DIRECT AND INDIRECT DATA.
IN THIS PAPER THE MAIN FEATURES OF TWO QUASI CIRCULAR ZONES ARE
PRESENTED ON THE BASIS OF THE INSTANTANEOUS PATTERNS OF THE DISTRIBUTION
OF GEOMAGNETIC ACTIVITY AS WELL AS ON THE BASIS OF THE DYNAMICS OF THESE
PATTERNS. A MAGNETOSPHERE MODEL REFLECTING THESE FEATURES IS PRESENTED.
THE SUGGESTED MODEL LINKS THE LOWER LATITUDE ZONE WITH PROCESSES
OCCURRING IN THE MAGNETOSPHERIC TAIL, WHEREAS THE HIGHER LATITUDE ZONE
IS CONNECTED WITH PARTICLE INJECTION THROUGH THE NEUTRAL POINTS.
FACILITY: IZMIRAN, IRKUTSK, USSR.

UNCLASSIFIED

A70-21385   A magnetosphere model based on two zones of precipitating energetic particles. V. M. Mishin, T. I. Saifudinova (Akademiia Nauk SSSR, Institut Zemnogo Magnetizma, Ionosfery i Rasprostraneniia Radiovoln, Irkutsk, USSR); and I. A. Zhulin (Akademiia Nauk SSSR, Institut Zemnogo Magnetizma, Ionosfery i Rasprostraneniia Radiovoln, Akademgorodok, USSR). (*International Symposium on the Physics of the Magnetosphere, Washington, D.C., Sept. 3-13, 1968.*) *Journal of Geophysical Research*, vol. 75, Feb. 1, 1970, p. 797-806. 48 refs.

Description of the main features of two quasi-circular zones of precipitation of energetic particles on the basis of the instantaneous patterns of the distribution of geomagnetic activity as well as on the basis of the dynamics of these patterns. A magnetosphere model reflecting these features is presented. The suggested model links the lower-latitude zone with processes occurring in the magnetospheric tail, whereas the higher-latitude zone is connected with particle injection through the neutral points.   (Author)

E.B.

REEL/FRAME
19771912

USSR

MISHIN, V. V.

"Distribution of Displacements and Rates of Displacements in Solids Beyond a Wave of Intensive Perturbation"

Translation: Results are presented from Moire-method measurements in rods of type 3 steel, brass and aluminum 280 mm long and 18, 24 and 28 mm in diameter respectively of displacements, rates of displacements and propagation of compressive waves caused by explosion of a charge at the ends of the rods. To form the Moire bands, a grid of parallel bands was applied to the side surfaces of the rods. Another grid on a transparent backing was placed near the surface of each rod. The motion of the Moire patterns formed in reflected light was photographed using the time magnifier method and an SFR-3L device. Data are presented on the dependence of displacements on time at various distances from the charge and on the nature of attentuation of waves in the materials studied.

1/1

1/2   014   UNCLASSIFIED   PROCESSING DATE--20NOV70

TITLE--ADIPALDEHYDE -U-

AUTHOR-(04)-POKROVSKAYA, I.YE., MENYAYLO, A.T., RYZHANKOVA, A.K., NISHINA, L.S.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,761
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, CHEMICAL SYNTHESIS, CYCLOHEXENE, OXIDATION,
DICARBOXYLIC ACID, ALDEHYDE, TERTIARY AMINE, ALIPHATIC AMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1739   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0152005

UNCLASSIFIED

CIRC ACCESSION NO--AA0132005
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ADIPALDEHYDE WAS PREPD. BY
  TREATING CYCLOHEXENE WITH O SUB3 IN AN ORG. SOLVENT IN THE PRESENCE OF
  AN ALIPHATIC TERTIARY AMINE.

UNCLASSIFIED

USSR

UDC 632.95

MISHINA, R. V.

"The Detection of Octamethylpyrophosphoramide in Biological Material by Means of Thin-Layer Chromatography"

Trudy Vtorogo Vsesoyuznogo soveshchaniya po issledovaniyu ostatkov pestitsidov i profilaktike zagryazneniya imi produktov pitaniya, kormov i vneshney sredy (Works of the Second All-Union Conference on the Study of Pesticide Residues and the Prevention of Contamination of Food Products, Fodders and the Environment by Them), Tallinn, 1971, pp 174-176 (from Referativnyy Zhurnal -- Khimiya, No 10 (II), 1972, Abstract No 10N509 by T. A. Belyayeva)

Translation: Octamethylpyrophosphoramide is extracted from biological material with water (it is kept for one day and agitated for 20 minutes). The extract is filtered, centrifuged for 5 minutes at 3000 rpm and treated with petroleum ether. The aqueous extract is extracted with $CHCl_3$, 3 x 20 ml. The extract is filtered, evaporated at $40°$, cold acetone is added, then it is centrifuged, the solution is evaporated at $30°$, the residue is chromatographed on silica gel with acetone-ethyl alcohol-water (1:1:2), developed with a reagent containing 5 ml 55% $HClO_4$, 24 ml 4% $(NH_4)_2 MoO_4$, 10 ml 1N HCl and 60 ml water, and

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- 80-

USSR

MISHINA, R. V., Trudy Vtorogo Vsesyuznogo soveshchaniya po issledovaniyu ostatkov pestitsidov i profilaktike zagryazneniya imi produktov pitaniya, kormov i vneshney sred, Tallinn, 1971, pp 174-176

kept for 5 minutes at 80° and for 30 minutes under ultraviolet light. Sensitivity of the method: $< 0.5 \gamma$.

2/2

1/2   008   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--SYNTHESIS AND PROPERTIES OF PYRROLIDINES AND PYRROLES -U-

AUTHOR-(03)-TEREMTYEV, A.P., VOLODINA, M.A., MISHINA, V.G.

COUNTRY OF INFO--USSR

SOURCE--VESTN. MOSK. UNIV., KHIM. 1970, 11(1), 93-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL SYNTHESIS, PYRROLES, PYRROLIDINE, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1099   STEP NO--UR/0189/70/011/001/0093/0095

CIRC ACCESSION NO--AP0104497
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0104497   UNCLASSIFIED   PROCESSING DATE--18SEP70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   TO 0.04 MOLE HCONME SUB2 WAS ADDED
FOR 10 MIN 0.042 MOLE POCL SUB3, WITH COOLING AND STIRRING, THE MIXT.
STIRRED 45 MIN, AND WITH COOLING WAS ADDED FCR 30 MIN 0.01 MOLE
1,ALKYL,2,METHYL(OR PHENYL)CYCLOPENTA OR CYCLOHEXA(B)PYRROLE IN 2.7 ML
HCONME SUB2.   THE MIXT. WAS HEATED AT 35-40DEGREES TC GIVE THESE I (R, R
PRIME1, N, PERCENT YIELD, B SUB4, M.P., AND N PRIME20 SUBD GIVEN): ME,
BU, 1, 50, 160-2DEGREES, -, 0.15430; PH, ET, 1, 75, -,)10-11DEGREES, -;
ME, BU, 2, 60, 168-9DEGREES, -, 0.15510; PH, ET, 3, 89, -,
132-3DEGREES, -. ADDING TO 0.004 MOLE I (R EQUALS PH, R PRIME1 EQUALS
ET, N EQUALS 1 OR 2) IN 25 ML H SUB2 O, 0.04 MOLE KMNO 3 HR, FOLLOWED BY
1.5 HR STIRRING GAVE 96PERCENT BZOH.

UNCLASSIFIED

USSR

TERENT'YEV, A.P., VOLODINA, M.A., MISHINA, V.G., Department of Organic Chemistry
Moscow State University imeni M.V. Lomonosov, Moscow, Ministry of Higher and
Secondary Specialized Education RSFSR

UDC: 547.75

"Synthesis and Properties of Pyrrolidines and Pyrroles"

Abstract: The authors investigated the reaction of formylation of 1-alkyl-2-
(methyl- or phenyl)-cyclopentano-4, 5-pyrroles, and also 1-alkyl-2-(methyl- or
phenyl)-cyclohexano-4,5-pyrroles. The position of the formyl group was determined
on the basis of the products of formylation of 1-ethyl-2-phenylcyclopentano- and
cyclohexano-4, 5-pyrroles. Interaction of 1-alkyl-2-(methyl- or phenyl)-cyclopentano-
and cyclohexano-4, 5-pyrroles with dimethylformamide and phosphorus oxychloride
formed previously unknown 1-alkyl-2-(methyl- or phenyl)-3-formylcyclopentano- and
cyclohexano-4, 5-pyrroles with a yield of 50-89%. The synthesized 1-butyl-2-
methyl-3-formylcyclopentano- and cyclohexano-4,5-pyrroles are oils which darken
rapidly in air. The 1-ethyl-2-phenyl-3-formylcyclopentano- and cyclohexano-4,
5-pyrroles are crystals. It is established that the formyl group occupies the
third position in the pyrrole cycle rather than the benzene ring.
1/1

USSR '   _1_

LEVSH, I. P., HIYAZOV, M. I., UBAYDULLAEV, A. K., MISHINA, V. N., MUKHITDINOV, KH. KH.

"Mass Transfer and Hydrodynamics in 3-phase Fluidized Bed Using Various Fillers"

Gidrodinamika, Teplo- i Massoobmin v Psevdoozhizh. Sloye [Hydrodynamics, Heat and Mass Transfer in Fluidized Bed], Ivanovo, 1971, pp 202-207. (Translated from Referativnyy Zhurnal Mekhanika, No 1, 1972, Abstract No 1B1121, by V. A. Kernerman).

Translation: Studies involving fluidization of sprinkled packing (plastic rings, hollow balls and cubes) in three gas-liquid systems on grid plates and overflow plates in apparatus 145 to 300 m in diameter have shown that in the initial period of fluidization of the filler in the 3-phase layer, 10-15 times greater phase contact surface is created than in a bubbling layer without filler. Movement of the filler and pulsating fluid drain through the holes in the plates facilitate intensive renewal of the phase contact surface and increased mass transfer rates. Data are presented on the influence of gas flow rate and sprinkling density on bad resistance and dynamic layer height, as well as the observed values of mass transfer coefficients and the contact surface between phases calculated according to the method suggested. 13 biblio refs.

1/1

USSR

UDC: 621.373.531.2(088.8)

MISHINSKIY, Yu. N., Chernigov Synthetic Fiber Combine

"A Blocking Generator"

USSR Author's Certificate No 266823, filed 25 Oct 68, published 26 Jun 70 (from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1G234 P)

Translation: This Author's Certificate introduces a transistorized squegging oscillator with collector-base transformer coupling with a resistor in the collector circuit and a time-mark RC network in the emitter circuit. The oscillator also includes an additional capacitor and transistor. To increase the off-duty factor of the emitted pulses to a value of the order of several hundred without changing pulse duration or shape, the additional capacitor is connected in the collector circuit of the additional transistor and is also connected through a semiconductor separating diode in parallel with the capacitor in the time-mark RC network. The base-emitter junction of the additional transistor, which has conductivity opposite to that of the squegging oscillator transistor, is connected in parallel with the resistor. The capacitance of the additional condenser is chosen to be greater than that of the capacitor in the time-mark network.

1/1

- 98 -

USSR

UDC 547.26'118

ORLOVSKIY, V. V., VOVSI, B. A. (deceased), and MISHKEVICH, A. YE., Leningrad
Chemical-Pharmaceutical Institute

"Dealkylation of Dialkyl Esters of Phosphorous Acid"

Abstract: Reaction of dialkyl Phosphite taken in a 3-8 fold excess with the
salts of hydrohalide acids leads to the formation of the salts of monoalkyl
esters of phosphorous acids in almost quantitative yields. It was shown that
the dealkylation of dialkyl phosphites is accelerated in the order K, Na, Li,
as well as Ba, Sr, Ca, Mg, and Cl, Br, I. The rate of the reactions of dialkyl
phosphite with the salts of substituted ammonia can be expressed by a kinetic
equation of the second order, in agreement with the S_N2 mechanism. An analytical
method was proposed for the ammonium salts of the monoesters of phosphorous acids
based on potentiometric titration in nonaqueous media.

1/1

- 21 -

USSR

MISHKEVICH, V. G.

UDC 629.12:532

"Theoretical Study of the Operation of a Screw in a Tube on the Basis of Vortex Theory"

Tr. Leningr. korablestroit. in-ta (Works of Leningrad Shipbuilding Institute), 1970, vyp. 69, pp 97-102 (from RZh-Mekhanika, No 11, Nov 71, Abstract No 11B409)

Translation: It is pointed out that a screw operating in a tube has better operating qualities and smaller losses to overflow at the ends of the blades and causes lower axial velocities. The study of the operation of a screw in a tube has important significance when designing jet propellers and right-angle steering propellers and also in improving the propulsion characteristics of the jet propellers.

Using the research of Kopeyetskiy, Gudman and Tachmindzhi, the author presents the equations for calculating the thrust and power coefficients of the optimal screw operating between coaxial tubes. The viscous losses were not taken into account here. The generalized Prandtl correction for finiteness of the number of blades, the correction for the effect of the tube walls and the correction for the effect of the finite size of the hub are introduced into these equations.

1/2

USSR

MISHKEVICH, V. G., <u>Tr. Leningr. korablestroit. in-ta</u>, 1970, vyp. 69, pp 97-102

The calculations were performed by the presented equations, and the diagrams were constructed for a series of propellers with 2, 3, 4 and 5 blades with a relative radial clearance of 1% and a relative hub diameter of 0.2. These diagrams are presented in the article and can be used when designing jet propellers.

Calculations were then performed and a diagram constructed for the effect of the hydrostatic pressure on the thrust of the propeller as a function of the magnitude of the relative structural clearance. This diagram can be used to determine the correction for the effect of the cavitation tube walls when testing propeller models in experimental tanks.

2/2

AA0044780 . Mishkinis, A.P.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

1/70

241106 A CARD PROCESSING MACHINE, designed for the
rapid feed of cards from a stack to 'read'
brushes and subsequent assembly into the stack in
the same order, is proposed on a circular plan,
shown in the diagram. 1 is the stack held in a
magazine, dispensed by a feed-out device 3 on to a
vacuum drum 2, where the information is picked off
by brushes 11. A rejecting device 4 passes the
card on to the inner surface of the large circulating
drum 5 driven by one of the rollers 6,7,or 8, whence
it is returned to the top of the magazine by the
scoop 9, dipping into a groove in the drum face 5.
In addition to rapid processing of the contents of
the stack, the device, by interrupting the ejector
4, can be made to repeat the passage of any card
over drum 2, for repetitive readout at 11.
30.1.67 as 1132045/26-24 Add to 227692. T.V.YAKUTIS
et alia. CALCULATING MACHINES DES.BUR. (12.8.69)
Bul 13/1.4.69. Class 42m³, 21a¹. Int.Cl.G 06F, H 0 k.

1/3

4

1977 1587

AA0044780
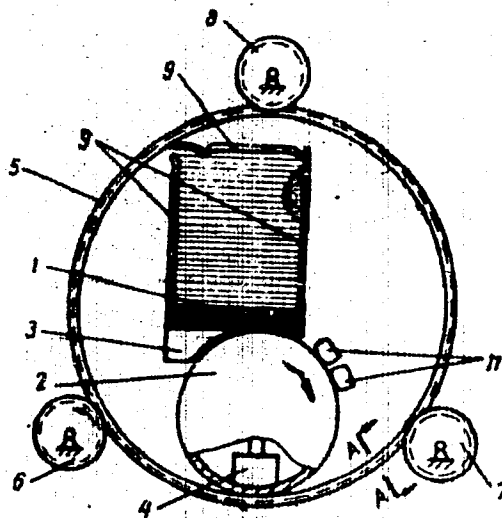
2/3

19771588

AA0044780

AUTHORS: Yakutis, T. V.; Mishkinis, A. P.; Shchupak, I. A.

Spetsial'noye Konstruktorskoye Byuro Vychislitel'nykh Mashin

19771589

USSR   UDC: 51.801

MISHKIS, A. G.

"On Finitely Definable Languages"

Uch. zap. mat. kafedr. Tul'sk. gos. ped. in-t. Geometriya i algebra (Sci-
entific Notes of the Mathematics Department. Tula State Pedagogical Insti-
tute. Geometry and Algebra), 1970, vyp. 2, pp 253-259 (from RZh-Kibernetika,
No 12, Dec 71, Abstract No 12V1067)

Translation: The author considers the problem of existence of a language
with a given configurational characteristic. A number of lemmas and
theorems are proved on the finite definability of one class of KS-languages
and on the algorithmic insolvability of the problem of finding a configu-
rational characteristic of KB-languages. In this connection, all languages
are considered over permissible vocabularies. V. Mikheyev.

1/1

USSR

UDC: 621.375.4(088.8)

MISHKOV, V. L., OSTAPETS, V. N.

"A Cascode Amplifier"

USSR Author's Certificate No 282435, filed 3 Apr 69, published 11 Dec 70
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D123 P)

Translation: A cascode amplifier is proposed which contains two triode
tubes, the grid of the first being connected to the input signal source,
while the plate of the second is connected through a load resistor to a
terminal of the supply source. To extend the dynamic range, the cathode
of the second triode is connected to the collector of an NPN transistor
whose base is connected to the centertap of a resistor divider connected
between a terminal of the power supply and the plate of the first triode.
The plate of the first triode is connected to the grid of the second triode
and to the emitter of the above-mentioned transistor.

1/1

UNCLASSIFIED

TITLE--EFFECT OF TEST CONDITIONS ON A COMPARATIVE EVALUATION OF THE WEAR
   RESISTANCE OF TIRES --U--

PROCESSING DATE--30OCT70

AUTHOR-(04)-GENNIKH, M.E., GUSLITSER, R.L., ZAKHAROV, S.P., MISHNEV, G.V.

CCUNTRY CF INFO--USSR

SOURCE--KAUCH. REZINA, 1970, 29(3), 38-41

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--MOTOR VEHICLE TIRE, WEAR RESISTANCE, TEST METHOD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0836

STEP NO--UR/0138/70/029/003/0038/0041

CIRC ACCESSION NO--AP0124503

UNCLASSIFIED

2/2   023
CIRC ACCESSION NO--AP0124503   UNCLASSIFIED   PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT. AUTOMOBILE TIRES WERE TRACK TESTED
  TO DEVELOP A RELIABLE METHOD FOR EVALUATING THEIR WEAR RESISTANCE.
  SEVERAL RECOMMENDATIONS WERE GIVEN.   FACILITY: NAUCH.-ISSLED.
  INST. SHINNOI PRCM., MOSCOW, USSR.

UNCLASSIFIED

6679   (SLAC-Trans-105) PRELIMINARY RESULTS OF A
STUDY OF THE ρ-MESON RESONANCE USING COLLIDING
ELECTRON-POSITRON BEAMS. Balakin, V. E.; Budker, G. I.;
Korshunov, Yu. V.; Mishnev, S. L.; Pakhtusova, E. V.; Pestov,
Yu. N.; Sidorov, V. A.; Skrinskii, A. N.; Tumaikin, G. I.; Khabakh-
pashev, A. G. (Akademiya Nauk SSSR, Novosibirsk. Institut
Yadernoi Fiziki). Translated by T. Watt for Stanford Linear
Accelerator Center, Calif., from Russian Preprint No. 327. 12p.
Dep. CFSTI.

The results are reported of a preliminary analysis of approxi-
mately 100,000 photographs from a spark-chamber study of the ρ-
meson, using the electron-positron storage ring VEPP-2. The
measurements were carried out for nine energy values between
508 and 514 MeV. Two types of events were analyzed: elastic
electron-positron scattering and charged kain pair production. A
least-squares fit of the results to the Breit-Wigner curve yielded
the following values for the resonance parameters: $\Gamma = 4.1 \pm 0.5$
MeV and $\sigma_0 = 2.3 \pm 0.3$ μb. The total resonance cross section for
the formation of the ρ-meson was found to be $\sigma_{\rho} = 4.8 \pm 0.6$ μb.
(L.B.S.)

19700283

MISHNEV, S. I.

SLAC TRANS - 149

AEC/SLAC/TRANS-149-72

EFFECT OF NONLINEARITIES ON OSCILLATIONS IN A STORAGE RING

BY

G.N. KULIPANOV, S.I. MISHNEV, S.G. POPOV AND G.M. TUMAIKIN

Translated (November 1972) from the Russian
Vlijanie nelineinostei na betatronnya kole-
baniya v nakopitele. IYaF Preprint No. 251,
Novosibirsk (1968), 34 pages.

TRANSLATED FOR
STANFORD LINEAR ACCELERATOR CENTER

1/2   007   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--INVESTIGATION OF THE PRECISION OF LINEAR AUTOMATIC CONTROL SYSTEMS
   WITH RANOMLY VARYING STRUCTURE -U-
AUTHOR--MISHULINA, O.A.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, TEKHNICHESKAIA KIBERNETIKA,
   JAN.-FEB. 1970, P. 195-206
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ELECTRONICS AND
   ELECTRICAL ENGR.
TOPIC TAGS--LINEAR AUTOMATIC CONTROL SYSTEM, RANOM PROCESS, CONTROL
   STATISTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1083   STEP NO--UR/0280/70/000/000/0195/0206

CIRC ACCESSION NO--AP0118233
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0118233   UNCLASSIFIED   PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE INFLUENCE OF
RANDOM REVERSIBLE FAILURES ON THE PRECISION OF LINEAR AUTOMATIC CONTROL
SYSTEMS. IT IS SHOWN THAT SUCH SYSTEMS CAN BE TREATED AS SYSTEMS WITH
RANDOM INTERMITTENT VARIATIONS OF THE STRUCTURE. A METHOD OF
CALCULATING THE STATISTICAL CHARACTERISTICS OF THE SYSTEM OUTPUT
COORDINATES IN THE CASE OF DETERMINATE OR RANDOM INPUT SIGNALS IS
PROPOSED. THE METHOD REQUIRES A SINGLE COMPUTER SOLUTION OF A SYSTEM
ORDINARY DIFFERENTIAL EQUATIONS.

UNCLASSIFIED

MISHURIN, V.M.

1/2   011   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--CERTAIN TECHNIQUES OF STUDYING MEMORY AND THE PURPOSE OF PSYCHO
   PHYSIOLOGICAL SELECTION -U-
AUTHOR--MISHURIN, V.M.

COUNTRY OF INFO--USSR

SOURCE--VOENNO MEDITSINSKII ZHURNAL, PAR. 1970, P. 75-77

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL
   SCIENCES
TOPIC TAGS--MEMORY, PSYCHOLOGIC TEST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3009/0135   STEP NO--UR/0177/70/000/000/0075/0077

CIRC ACCESSION NO--AP0139000
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0139000
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF PSYCHO PHYSIOLOGICAL
  TESTS IN WHICH A SPECIAL PROGRAMMED DEVICE, MEMORY, WAS USED TO
  EVALUTATE THE RATE, STEADINESS, AND ACCURACY OF THE MEMORIZING PROCESS
  AND SENSOMOTOR REACTIONS OF A GROUP OF 300 SUBJECTS TO LIGHT SIGNALS
  DELIVERED IN 50 SIGNAL CYCLES AT FREQUENCIES OF 20, 40, 50, 60, OR 70
  CYCLES A MINUTE. STATISTICAL ANALYSIS OF THE TEST RESULTS ALLOWS A
  RELIABLE DIVISION OF THE SUBJECTS INTO A HIGH RATING GROUP AND A FAIR
  RATING GROUP. THE NUMBER OF ERRORS AND OMISSIONS WAS BELOW 100 IN
  83.6PERCENT OF SUBJECTS IN THE FIRST GROUP AND 11.4PERCENT OF SUBJECTS
  IN THE SECOND GROUP. A RELATION BETWEEN THE RESULTS OF THESE TESTS AND
  THE PROFESSIONAL PERFORMANCE OF AIRCRAFT MECHANICS IS NOTED.

UNCLASSIFIED

1/2   020   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--A DEVICE FOR PROTECTING CHEMICAL CONTAINER TYPE APPARATUS WITH
   POWDERED POLYMERS -U-
AUTHOR-(03)-ZHERDENKO, A.M., YEFREMENKO, I.P., MISHUROV, V.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. NEFT. MASHINOSTR. 1970, (2), 38-40

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--SPECIALIZED COATING, CONTAINER, PLASTIC COATING, POLYETHYLENE,
   EPOXY RESIN, FLUOROCARBON RESIN, PLASTIC FABRICATING MACHINERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0735   STEP NO--UR/0314/70/000/002/0038/0040

CIRC ACCESSION NO--AP0119642
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0119642
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A COATING DEVICE WAS DEVELOPED FOR
  COATING CONTAINERS, REACTORS, DRUMS, LIDS, ETC. WITH A PROTECTIVE
  POLYMER COATING. A DIAGRAM OF THE DEVICE AND ITS MODE OF OPERATION WERE
  PRESENTED. THE USE OF THE DEVICE FOR COATING CONTAINERS WITH MOLTEN
  POWD. POLYETHYLENE, EPOXY RESINS, AND F CONTG. COPOLYMERS WAS DISCUSSED.

UNCLASSIFIED

Electrochemistry

PAVLOV, Yu. V., FOMICHEVA, M. G., MISHUSTIN, A. I., and ALPATOVA, N. M.,
Institute of Electrochemistry, Academy of Sciences, USSR, Moscow State
University Imeni M. V. Lomonosov

"Dynamic Polarization of Hexamethylphosphoric Triamide Protons by Electro-
chemically Generated Solvated Electrons"

Abstract: Existence of solvated electrons has been suspected on the basis of
some NMR data. In this study an attempt was made to use dynamic polarization
to identify these electrons. Dynamic polarization is based on changing the
intensity of NMR signals lightly connected with the unpaired electrons, by
saturating the NMR transitions with UHF power. The study was carried out on
hexamethylphosphoric triamide in LiCl and NaBr solutions. On the basis of
the data from dynamic polarization, spectra and relaxation times, a conclusion
was reached that in the system under investigation a very weak intermolecular
superfine scale interaction takes place, indicating the presence of solvated
electrons rather than the $\{[(CH_3)_2N]_3PO\}^-$ type anion radicals.

1/1

1/2   030   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--POLYMERIC COMPOSITIONS BASED ON POLY(VINYL CHLORIDE) AND BUTADIENE
STYRENE THERMOELASTIC PLASTIC MATERIALS FOR ARTIFICIAL LEATHER -U-
AUTHOR--DENISENKO, I.S., KOVALEV, N.F., MISHUSTIN, I.U., ALEKSEYENKO, V.I.

COUNTRY OF INFO--USSR

SOURCE--KOZH., OBUV. PROM. 1970, 12(2) 44-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYVINYL CHLORIDE, BUTADIENE STYRENE RESIN, LEATHER,
COPOLYMER, TENSILE STRENGTH, ELONGATION, FREEZING, PLASTICIZER/(U)DST30
BUTADIENE STYRENE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/0187   STEP NO--UR/0498/70/012/002/0044/0046

CIRC ACCESSION NO--AP0106843
                            UNCLASSIFIED

CIRC ACCESSION NO--AP0106843   UNCLASSIFIED   PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTS OF A BUTADIENE STYRENE BLOCK COPOLYMER DST-30 (I) (CONTG. 30PERCENT STYRENE) ON THE PHYSICOMECH. PROPERTIES OF POLY(VINYL CHLORIDE) (II) WERE STUDIED. INTRODUCTION OF LARGER THAN 60 PARTS I-100 PARTS II BROUGHT ABOUT INCREASED TENSILE STRENGTH AND RELATIVE ELONGATION, SUGGESTING THAT I WAS A POLYMERIC PLASTICIZER OF II. THE FREEZE RESISTANCE, FLEXURAL STRENGTH, TEAR STRENGTH, AND REBOUND RESILIENCE INITIALLY DECLINED WITH ADDN. OF I, REACHING AMIN. AT 60-70 PARTS I, AND ON FURTHER ADDN. OF I, INCREASED, PRESUMABLY DUE TO LIMITED COMPATIBILITY BETWEEN I AND HIGHLY POLAR II. AN INTERLAYER PLASTICIZATION MECHANISM IS PROPOSED.

UNCLASSIFIED

MISHUSTIN, Ye. N.

UDC 576.851

BIOLOGICAL NITROGEN IN AGRICULTURE

The classic works of the French scientist J. Bussengo back in the 1840's demonstrated that the yield of crops depends primarily on the level of nitrogen feeding of the plants. The vast majority of plants, including grains and industrial crops, require nitrogen in bonded compounds; as a rule organic compounds of nitrogen are assimilated by plants only after mineralization.

The sources of nitrogen for plants can be nitrogen-containing compounds, formed from atmospheric nitrogen and reaching the soil with rain water, nitrogen-fixing microorganisms ("biological" nitrogen), soil components containing nitrogen (basically humus), gradually transformed to mineral compounds, and finally mineral fertilizers ("technological" nitrogen) and also manure and composts. The importance of those sources of supplementation of soil nitrogen for increasing the productivity of agriculture is analyzed briefly in this article.

The earth's surface gradually receives certain quantities of nitrogen compounds in rain, since electrical discharges and ultraviolet light convert atmospheric molecular nitrogen to the salts of ammonia and nitric acid. Existing data indicate that an average of 4-6 kg of bonded nitrogen per hectare reaches the earth's surface in this manner. It is noteworthy that the soil obtains nitrogen compounds (NH_3, N_2O) from the air not only with rainwaters, but also can absorb them from the gaseous phase. According to G. ... (1950) well treated soil can absorb enough ammonia from the air ... rather high crop yield. But this is undoubtedly overstating ... by means of adsorption barely exceeds an average of 5-6 kg of nitrogen per hectare per year, while the production of 10 centners of grain requires 30 kg of nitrogen (converted to pure nitrogen).

It is known now that only certain microorganisms have the capacity ... molecular nitrogen. The works of M. M. Volskiy (1961) were widely

JPRS 55789

TITLE--INFECTION AND LYSIS OF GRAM, NEGATIVE BACTERIA BY PARASITIC
BACTERIA BDELLOVIBRIO BACTERIOVORUS -U-

AUTHOR-(02)-MISHUSTIN, YE.N., NIKITINA, E.S.

CCUNTRY OF INFO--USSR

SOURCE--IZVESTIYA AKADEMII NAUK SSSR, SERIAY BIOLOGICHESKAYA, 1970, NR 3,
PP 423-426

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ESCHERICHIA COLI, PSEUDOMONAS, SERRATIA MARCESCENS,
BACTERIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0499   STEP NO--UR/0216/70/000/003/0423/0426

CIRC ACCESSICN NO--AP0126247
UNCLASSIFIED

CIRC ACCESSION NO--AP0126247

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SMALL BACTERIAL CELLS
MORPHOLOGICALLY IDENTICAL WITH BDELLOVIBRIO BACTERIOVORUS WERE ISOLATED
FROM NATURAL SUBSTRATES. THESE MICROORGANISMS ARE ABLE TO THRIVE ON
SUCH GRAM NEGATIVE BACTERIA AS : ESCHERICHIA COLI B. PROTEUS VULGARIS,
PSEUDOMONAS FLUORESCENS SERRATIA MARCESCENS. THE SEQUENCE OF PHASES OF
INFECTION OF BACTERIAL HOST CELLS BY THE PARASITE, BDELLOVIBRIO
BACTERIOVORUS WAS STUDIED. THE VARIABILITY OF THE SHAPE AND SIZE OF
BDELLOVIBRIO BACTERIOVORUS CELLS DEPENDING ON AGE, MEDIUM COMPOSITION
AND INCUBATION CONDITIONS WERE DETERMINED.   FACILITY: INSTITUTE
OF MICROBIOLOGY, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

USSR   UDC 630.54

MISHUSTIN, Ye. N.

"Chemicalization of Agriculture and Tasks of Microbiology"

Uspekhi mikrobiologii (Advances in Microbiology), No 7, 1971

Abstract: The article contains data showing that the chemicalization of
agriculture will produce a maximum effect if biological factors are used.
Ignoring the latter sharply reduces and sometimes nullifies the value of
chemicalization. The author analyzes the microbiological basis for methods
of using soil (effect of crop rotations), role of "biological" nitrogen in
Soviet agriculture, effect of mineral and organic fertilizers on the micro-
population of the soil, possibility of regulating nutrient conditions in
the soil by microbiological methods, etc. A special chapter analyzes the
effectiveness of microbiological methods of protecting plants against pests
and of stimulating plant growth.

1/1

USSR

UDC 629.12.002.3:691.3

MISHUTIN, V. A., FEDIN, YE. I., YAKOVLEVA, R. V.

"The Influence of Steam-Drying Regimes Upon the Strength and Frost Resistance of Shipbuilding Concrete"

Leningrad, Sudostroyeniye, No 12, 1970, pp 12-14

Abstract: An investigation is made of the possibility of a considerable increase in the strength, longevity (100 years and more), and frost resistance of shipbuilding concrete due to optimization of the steam-drying regimes in the production of thin-walled reinforced-concrete ship structures. 1 figure, 4 tables.

1/1

USSR

MISKARLI, A. K., MAKOV, N. N., and PROKOSHEV, V. A., Institute of
Inorganic and Physical Chemistry

"Study of Ion-Exchange Sorption on Cations on Azerbaydzhan SSR
Bentonites"

Abstract: The article describes results of a study of regulari-
ties in the ion-exchange sorption of microquantities of cesium,
strontium and calcium on Azerbaydzhan SSR bentonite from macrocom-
ponent solutions. Equivalence of cation exchange on bentonite with a linear
and a convex isotherm is established and exchange reaction constants are
determined.

1/1

USSR   UDC   546.681'883'78:543.42

MISKAR'YANTS, V. G., NIKITINA, L. A.

"Spectral Determination of Tantalum and Tungsten in Gallium-Based Alloy"

Moscow, Zavodskaya Laboratoriya, No 12, 1972, pp 1467-1469.

Abstract: A method is described for spectral determination of tantalum and
tungsten in a gallium-based alloy. By the use of fluorination and a special
method of photography of the spectrum, the sensitivity of the determination
is increased to 0.001% and the specimen remains in the electrode channel.
The variation factor for a single spectrum in the determination of tungsten
is 25%, in the determination of tantalum -- 17%.

1/1

USSR

UDC 531.36

MIS'KEVICH, O. R., and TSURIKOV, YU. A.

"The Asymptotic Stability of a Pendulum System with a Regulator"

Kiev, Prikladnaya Mekhanika, Vol 8, No 2, Feb 72, pp 92-99

Abstract: An investigation is made of the stability of a mechanical system which constitutes a rigid rectilinear rod with two mathematical pendulums of different length, attached to its longitudinal axis. The rod is acted upon by a tracking force along its axis, a directing force, aerodynamic forces, and dissipative forces. On the basis of the Hurwitz criterion, regions of asymptotic stability are obtained. An investigation is made of the influence, upon the system stability, of the parameters of the object, retardation in the regulator, aerodynamic forces and dissipative forces. Three figures, 4 references.

1/1

1/2   012   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--POLAROGRAPHY OF PHYSIOLOGICALLY ACTIVE AMMONIUM SUBSTITUTED
   THIOCYANATE SALTS. I. BENZYLPYRIDINIUM AND BENZYLQUINOLINIUM
AUTHOR-(02)-KRAVCHENYUK, L.P., MISKIDZHYAN, S.P.

COUNTRY OF INFO--USSR

SOURCE--FARM. ZH. (KIEV) 1970, 25(1), 37-41

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--POLAROGRAPHY, THIOCYNATE, PYRIDINE COMPLEX, QUINOLINE,
  PHARMACEUTICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0203   STEP NO--UR/0491/70/025/001/0037/0041

CIRC ACCESSION NO--AP0135699
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0135699
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A POLAROGRAPHIC STUDY OF
BENZYLPYRIDINIUM (I) AND BENZYLQUINOLINIUM (II) THIOCYANATES IN ORDER TO
ELABORATE AN ANAL. METHOD OF QUANT. DETN. OF BOTH SALTS IN SOLNS. WHILE
I IS REDUCED SHOWING A DOUBLE WAVE POLAROGRAM (E SUBONE HALF EQUALS
MINUS 1.28 AND MINUS 1.78 V) II SHOWS 3 INFLECTIONS (E SUBONE HALF
EQUALS MINUS 0.7; MINUS 1.2 AND MINUS 1.7 V) OF CURRENT. I AND II CAN
BE DETD. PRECISELY IN PHYSIOL. AND PRESERVING SOLNS. THE EXACT
INTERPRETATION OF ALL OF THE OBSD. WAVES IS GIVEN. E SUBONE HALF EQUALS
0.7 IS DUE TO THE ADSORPTION PHENOMENA WHILE E SUBONE HALF EQUALS 1.28
AND 1.2 ARE CUASED BY DIFFUSION AND E SUBONE HALF EQUALS 1.7 IS
CONNECTED WITH A CATALYTIC EVOLUTION OF H SUB2 O. FACILITY:
LVOV MED. INST., LVOV, USSR.

UNCLASSIFIED

USSR

UDC: 538.4

ZAYTSEV, A. A. and MISKINOVA, N. A.

"Investigating Some Processes in Discharges in Binary Mixtures"

V sb. Vopr. fiz. nizkotemperaturn. plazmy (Problems in the Physics of Low-Temperature Plasmas -- collection of works) Minsk, "Nauka i tekhn." 1970, pp 490-495 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2B61)

Translation: An investigation is conducted into discharges in binary mixtures of Ne-Hg and Ne-H$_2$ both with and without electrophoresis. Data is given concerning the electric field, the concentration and temperature of the electrons along the length of the axially nonuniform positive column. These parameters are compared with the parameters of the movable strata. The obtained data indicates that the ion mechanism of separating mixture components is to be preferred. The electron energy losses in axially homogeneous mixtures of inert gases and mercury vapor are measured and computed. Bibliography of 14. Author's abstract

1/1

USSR

BODAK, O. I., MIS'KIV, M. G., TYVANCHUK, A. T., KHARCHENKO, O. I., and GLADYSHEVSKIY, YE. I., L'vov State University imeni Ivan Franko

"System Cerium--Nickel--Silicon in the Region 33.3 - 100 at. % Ce"

Abstract: A study is made of the phase ratio of the system Ce-Ni-Si in the region 33.3 - 100 at. % Ce. A complete isothermal cross section of the diagram of state is constructed. The area of homogeneity and the crystalline structure of compounds formed in alloys in the interval 33.3 - 100 at. % Ce are determined.

1/1

- 73 -

USSR

MIS'NIK, V. A., Tomsk Institute of Automatic Control System and Radio Electronics

"Concerning the Passage of Current Through a Semiconductor Exposed to Light Under Conditions of Nonuniformity of Parameters of Anisotropy, Electrical Conductivity, and Relaxation Time"

Abstract: The author considers a bipolar semiconductor in which the tensors of electron and hole conductivity are anisotropic in the $X'Y'$ plane, and OZ' is the axis of symmetry for both tensors. The specimen is an infinite semi-conductor plate $(-d \leqslant y' \leqslant +d)$, and electric current flows along axis OX' under the effect of electric field $E_{x'}$. Surfaces $y' = \pm d$ are exposed to light. The light flux generates electron-hole pairs. The number of carrier pairs gener-ated depends on the "quantum yield" parameter which, like the absorption co-efficient, is a function of the energy of the quanta (intensity within the specimen varies in accordance with Bouguer – Lambert – Beer law). Description of the current flow follows in general the description in the model proposed by O. Von Madelung, L. Tewordt and H. Welker for the isotropic case (see

1/2

USSR, MIS'NIK, V. A., Izvestiya VUZov: Fizika, No 9(124), pp 81-85

Z. Naturforschg, Vol 10a, 1955, p 476). Effects accompanying the passage of electric current are quantitatively analyzed by solving the equation of bipolar diffusion.

2/2

USSR

UDC 616.981.452-084.47

AGAFONOV, V. I., BABKIN, Ye. I., VDOVIN, D. G., VOROBEYCHIKOV, V. M.,
VOROB'YEV, A. A., GANLESHKO, Kh. P., GAPOCHKO, K. G., GEFEN, N. Ye., YEVSTIGNEYEV,
V. I., YEMEL'YANOVA, O. V., ZEMSKOV, Ye. M., IMAMALIYEV, O. G., KAMALOV, I. I.,
KVIRIKADZE, V. V., KUTYREV, P. A., MISHNIKOV, O. P., PUSHKAREV, V. P., and
ROZDESTVENSKIY, D. A., Military Medical Academy imeni S. M. Kirov, Leningrad

"A Comparative Efficiency Characteristic of Different Immunization Methods
Against Plague Infection"

Abstract: Analysis of the available literature data led to the conclusion
that oral, aerogenic, and jet immunization methods are the most efficient
compared with subcutaneous and skin methods. The average number of patients
inoculated against plague infection was 517, 817 (419), and 937 per hr for jet
injectors, aerogenic method liquid and dry vaccine, and oral method (tablets),
respectively, compared with only 43 and 28 for the subcutaneous and skin
methods, respectively.

1/1

USSR

LYASHKO, I. I., VELIKOIVANENKO, I. M., and MISTETSKIY, G. YE.

"One Type of Problem in Planned Percolation From Channels to Intermittent Drainage in Inhomogeneous Soils"

Kiev, Matematicheskaya Fizika, No 8, 1970, pp 112-117

Abstract: The article considers problems in the planned steady pressureless percolation of a heavy incompressible fluid from parallel channels to intermittent perfect drainage. Numerical-analytic solutions are constructed.

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101618z Increasing the wear resistance of tread rubbers by using new types of carbon black. Baishikhina, M. P.; Mistryukova, G. V.; Vorob'eva, V. V. (Kirov. Shin. Zavod, Kirov, USSR). ~~Kauch. Rezina~~ 1970, 29(1), 29-30 (Russ). Tire treads made of 40:60 SKD-BSK rubber mixt. and filled with carbon black, type PM-100, had somewhat lower abrasion resistance than tires filled with Vulcan 6. However, these tires lasted (81.6-90.9) ✕ 1000 km in service, while the tires filled with the std. carbon black, type PM-70, lasted (59.4-81.5) ✕ 1000 km.   CPJR

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MISULOVIN, L. YA.

"Characteristics of Complex Miniaturization of Prospective Automatic Telephone
Exhanges"

Moscow, Elektrosvyaz', No 5, 1971, pp 25-30

Abstract: A study is made of the peculiarities of the requirements on plan-
ning and designing prospective automatic telephone exchanges which arise from
the method of complex miniaturization. An expression is derived for the optimal
integration level considering reliability and operating expenditures.

Special attention is given to integration and automation. The character-
istics of integrated plates are analyzed mathematically in detail. Overall dimen-
sions, nomenclature, planar designs, decreasing the number of degrees of freedom
and static designs are considered as related to integration and "group" process-
ing.

A functional junction point on a multilayer printed plate and the
equivalent junction using bunched conductors and wiring needs are compared to
show the advantages of the former. The important role of group processing (all

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